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EXAMINER GREEN, RICHARD R				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,982

Applicant(s)

MUELLER ET AL.

Examiner

Richard R. Green

Art Unit

3644

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2009 and 14 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-10, 14, 15 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 14, 15 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Final Drawing Review (PTO-849)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/20/2009 has been entered.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because::

reference character "42" has been used to designate both "end region" (line 2 of ¶ 52, also in ¶ 50) and "disc-shaped cone element" (line 5 of ¶ 52); and

reference "48" has been used to designate both "first plastic-like insulation ring" (line 2 of ¶ 51, also in ¶ 54, 55) and "dome-shaped casing" (line 3 of ¶ 52).

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the:

embodiment containing both the attachment element configurations of claim 1 and the additional attachment rivet or screw and nut of claims 21 and 22;

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

In line 5 of ¶ 52, "disc-shaped cone element 42" should probably read, "disc-shaped core element 52", since it appears that this is a reference to the same element five lines from the bottom of ¶ 51, and not the "end region 42" in lines 2 of ¶ 52.

In line 1 of ¶ 53, "core element 2" should probably read, "core element 52", since it is more likely that this is a reference to the same aforementioned disc-shaped cone element of ¶ 51 and ¶ 52 than to the "first insulation package 2".

In line 14 of ¶ 50, "base area 46" uses reference character 46, previously ascribed to "cover area 46" in lines 1-2 of ¶ 50, and line 3 of ¶ 49 designates, "base area and cover area 46, 47". Which is the base area, and which the cover area? Paragraph 50 describes the first and second discs of the truncated-cone body, and the first is ascribed to "cover area 46" (lines 1-2), while the second is ascribed to "base area 46" (line 14). Both discs are additionally described to have holes smaller in shape than the external diameter of the dome-shaped casing 28, so that they can be fitted over the end of the insulation pin. Are these references to the fact that one of each of two elements 13 will be mounted on either end 42 of the pin 4? Claim 11 requires first and second insulation discs to be associated with the same truncated-cone body. It is not clear which elements in the drawings correspond to the structural limitations of first and second insulated discs of a truncated cone body claimed in claims 11 and 12.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1-6, 8-12, 14, 15 and 21-30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims **1-6, 8-12, 14, 15 and 21-30**, claims 1 and 2 require the attachment elements to be "burn-through-proof", which term "burn-through-proof" Applicant has argued that the specification defines as materials which must adhere to FAA standards for "fireproof" (Remarks 4/20/2009, page 12). However, the specification describes the elements of the attachment elements to be made from stainless steel or a polyamide. Nowhere in the specification does Applicant describe any of the materials of the attachment elements, the insulation, or any elements at all to meet the FAA standards for "fireproof" materials.

In particular, a number of elements claimed to be part of the attachment elements are claimed to be made of plastic, including a plastic casing (claims 5, 9, 15, and 26-38), a plastic truncated cone body (claim 12), and a screw (claims 21 and 22). Applicant has not stated in the specification that any of these plastics meet the FAA standards for "fireproof". Other elements are claimed to be made of metal (in claims 9,

15, and 21), which metal has also not been disclosed to meet FAA standards for "fireproof" materials.

Claims **29 and 30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims **29 and 30**, if support for the "disk of a first burn-through-proof material having a central hole" and first and second opposing surfaces is found in the original disclosure as element 52, then the only shaped flange shown to have a surface which could be considered a paraboloid (as required by claim 30), or even to be flange-shaped and encase the core (as required by claim 29) is the jacket 50 in figures 6 and 6a, which is mentioned only once, in ¶ 49, and described to be "burn-through proof", though it is not stated what material it is made from, or that it is a different material than that of the disc-shaped core element 52. If ¶ 53 allows for the casing of the disc-shaped core element 52 to be made from a plastic material of poor thermal conductivity, the shape of the casing has not been disclosed and the casing does not provide support for claim 30. If the jacket 50 is part of the casing, this has not been made clear in the disclosure.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1, 5, 8, 10-12, 14, 15 and 21-30** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim **1**, lines 9-10 have "each of the fuselage insulation packages comprising:", but then in lines 11-16 only one end of one package will be discussed. This presents confusion as to whether the limitations in lines 11-16 apply to all of the packages as required by lines 9-10, or just to the packages cited in lines 11-16. Additionally, starting in line 21 elements are recited which are not associated with the insulation packages, however lines 9-10 are open ended and so it is unclear whether the aircraft or each package comprises the first attachment element.

Regarding claim **5**, the core element is required to be embedded in "the casing made of a plastic material", but no prior reference in the claims to a "casing made of a plastic material", and this reference lacks proper antecedent basis. If the claim means to introduce the limitation that "casing" of claim 4 is made of a plastic material, it should state that the element is embedded in the casing, and that the casing is made of a plastic material.

Claim **8** recites the limitation "the branch end of the parabola" in line 3. There is insufficient antecedent basis for this limitation in the claim. Is this related to the paraboloid shape? Additionally, there is no antecedent basis for, "the pin axis" in line 4; the pin should first be introduced to have a particular axis.

Additionally, what is a "branch end" of a parabola? Also, if the end region has the shape of a paraboloid, a parabola is not inherently set forth.

Regarding claim **12**, lines 1-2 require, "wherein the insulated disc or ring element cover area of the truncated-cone body made of plastic"; it appears that this is a reference to a previously introduced element, however neither of claims 1 or 10 introduce a "insulated disc or ring element cover area of the truncated-cone body made of plastic". For purposes of proper antecedent basis, claim 12 must introduce the limitation that an element is made from plastic. However, it is not clear which of the insulated disc/ring element, the cover area, or the truncated-cone body is made of plastic. Additionally, what is "the insulated disc or ring element cover area"? There is no antecedent basis for this term, either. Does the disc/ring have a cover area? If so, how is this area "of the truncated-cone body"?

Lines 4-6 set forth that several insulation braces are "spaced apart on the circumference", but it is unclear what circumference is meant. Apparently, it is both of the circumference of the interior diameter of the first ring and of the exterior diameter of the second ring, but it is not clear how diameters may have circumferences. It is also presumed that the first and second ring would have interior diameters, which would make sense if they had been claimed to have holes in their centers, but they have not. Claim 12 requires a particular location for insulation braces, but does not clearly nor definitely set forth the metes and bounds of this location.

Regarding claim **24**, the first and second retainers are required to cover some holes in the insulation, but it is not clear what holes are covered; "the hole in each of the flat insulation sections of the pair of fuselage insulation packages" could refer to either the first or second flat end sections; and "the hole in the first one of the pair of fuselage

insulation packages" could refer to the hole through either the first or the second end of the first insulation package.

Regarding claim **25**, the first attachment element must additionally comprise a burn-through-proof pin extending from one retainer end to the other, and have retention flanges at either end of the pin; are these flanges then located longitudinally within the two retainer ends? Or, instead of further comprising, is the first attachment element itself a pin with retention flanges on the retainer ends?

Regarding claim **30**, a surface of the shaped flange of the first and second retainers is required to have the shape of a paraboloid, and the support for this limitation in the figures appears to be the jacket 50 in figures 6 and 6a.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by USPN-6358591 to Smith.

Regarding claims **1 and 2**, Smith teaches in figs. 1-3:

an aircraft 21 comprising a fuselage, the fuselage including a plurality of stringers 28 aligned with the longitudinal axis of the aircraft and ribs 31 perpendicular to the stringers,

the ribs 31 attached at one end to the stringers and having at their distal ends an integral rib carrier (the hook at the top of the ribs in fig. 3), and having a rib attachment region between the two ends;

Smith teaches in figs. 3 and 4:

a hole 44 through the attachment region;

a first insulation package (a capstrip 29) having first and second opposing flat end sections extending from either end of the capstrip, the second end section having a length shorter than a length of the first end section (in fig. 3, both capstrips are shown to extend past the attachment region slightly further on one side of the rib than on the other);

a second insulation package 22 having first and second opposing flat end sections extending from either end of the package, the second end section having a length shorter than a length of the first end section (in fig. 3, the flat end on the left of package 22 is shown to be slightly longer than the flat end on the right side of package 22);

both packages 29, 22 having a foil enclosing a fire resistant insulation (package 22 has a "layer of fire-blocking material 33" and a "protective covering 23" enclosing insulation 24, col. 6, lines 40-43; in fig. 4 the capstrip 29 can be seen to have an outer covering as well);

a first fire resistant attachment element 26 (it is considered to inherently have some minimal level of fire resistance) passing through the hole 44 in the attachment region and having a first retainer end 34 and a second retainer end (the post 26 itself)

on opposite sides of the attachment region (in fig. 4, the post 26 passes through to the other side of the rib 31 from the washer 34);

wherein the first retainer 34 attaches the first flat end of the first package 29 and the second flat end of the second package 22 to the attachment region via holes in the respective flat ends such that a portion of each of the two packages overlaps (fig. 4: holes are in flat end 35 and the right side end of the capstrip 29, and washer 34 retains them on the post);

wherein the first package 29 is retained on the same side of the attachment region as the second retainer 26 by the second retainer 26 passing through a second hole formed in the first package 29 (fig. 3: a second hole is formed in the capstrip 29 on the opposite side of the rib 31 from the package 22, and the distal end of the post 26 passes through it);

wherein two holes are formed in the first package 29, and are retained on opposite sides of the attachment region by the element 26 (fig. 3), and two holes are formed in the second package 22 (fig. 3);

wherein each of the packages are attached to the fuselage (through the post 26 and rib 31) and are disposed within a space enclosed by interior paneling and by the outer skin 27 of the fuselage (such as the floor shown in fig. 2, or the opposite side of the fuselage; it is also inherent that the aircraft shown in fig. 1 has paneling covering the structure shown in fig. 3).

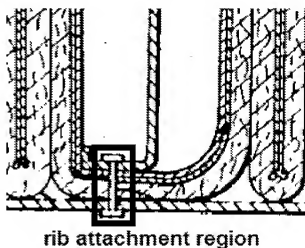
Regarding claim 3, the element 26 is a fire resistant pin (it inherently has some resistance to fire), and the post 26 is fed through two holes in the first package 29, the

hole 44 in the attachment region, and a hole in the second package 22, and all four of these holes are aligned (fig. 3).

Claims **1-3, 23 and 24** are rejected under 35 U.S.C. 102(b) as being anticipated by USPN-3567162 to Lea.

Regarding claims **1-3, 23 and 24**, Lea teaches an insulation arrangement comprising (in figs. 1 and 2):

an aircraft fuselage having a skin 23, stringers 22 and ribs 20 perpendicular to the longitudinal axis of the fuselage (see fig. 3), the ribs being attached to the stringers at one end and having rib carriers integrated into the other ends (the rib carriers being considered as the hook shape shown at the bottom of ribs 20 in fig. 1) and a rib attachment region disposed between the stringer and the rib carrier (the rib attachment region is considered herein to be the entire region whereby elements are attached to the rib, as shown by the rectangle in the marked-up figure below (from fig. 1):



a pair of insulation packages 17 which overlap in the attachment region (col. 4, lines 3-7 teach that "two units 17 may be fastened by overlapping (not shown) their end portions at the frames 20 and panel 24 junction": which means that the overlap would occur where the ribs 20 are joined to the panel 24, which by definition occurs in the rib attachment region set forth above), the packages being elongate, resting against the stringers 22 (see figs. 1-3), and comprising:

a first flat end section extending from a first package and having a first length (the left end of the right package in such a junction as shown above has a flat length from the last bend in the insulation to the attachment region);

a second flat end section extending from a second package and having a second length shorter than the first length (the right end of the left package in the above junction has a shorter length as considered from the bend in the insulation to the attachment region, since this length is shorter on the left side than on the right); and

a foil enclosing a fire resistant insulation (col. 3, lines 54-60: insulation 12 has inherent heat resistance, and astro-quartz layer 14 is a fire resistant foil) of a first thickness and a barrier layer having a lesser, second thickness (the foil 14 encloses many folded layers of insulation, some of which by random variation will inherently be thinner than others, if only on a microscopic level; alternatively, foil 16 encloses insulation 12 and fire barrier 14);

wherein the packages are attached to the fuselage (fig. 1, at 30), are completely enclosed by a foil (col. 3, lines 54-65: the insulation 12 is completely enveloped by at

least layers 14 and 16), and are arranged within a space enclosed by interior paneling 24 and the skin 23 of the fuselage;

the system comprising a fire resistant attachment element 30 having top and bottom opposing retainer ends and being disposed through a hole in the rib 20 such that the top and bottom retainer ends are on opposing top and bottom sides of the attachment region;

wherein the bottom retainer end attaches both of the first flat end section of the first package and the second flat end section of the second package to the rib attachment region via holes in the flat sections;

wherein the first package attached via the hole in the flat end section is retained on the same side of the rib attachment region as one of the retainer ends by passing the second retainer end of the attachment element through a second hole formed in the first package (see fig. 1: the packages 17 have several layers 12, 14, 16, and the element 30 passes through holes in all of them, therefore it passes through first and second holes in the same package 17);

wherein a hole in a first package 17 is retained on an opposite side of the attachment region from a hole in a flat end section of the first package by the attachment element 30 (fig. 1: the hole through the top of the package is on an opposite side of both the package and the attachment region from the hole through the bottom of the package);

wherein the attachment element comprises a fire resistant pin (it inherently has some fire resistance) and is fed through all of the holes in the packages, ribs, and paneling, such that all holes are aligned (see figs. 1-3);

wherein first and second retainers 32 are attached to the top and bottom ends of the pin 30, covering the holes (covering the outermost holes).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **4-6, 10, 12 and 24-28** rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of USPN-4805366 to Long.

Smith is silent as to casings around core elements, or a disc joined to an insulation jacket. However, Long teaches an attachment system for retaining insulation layers in place (col. 1, lines 8-12). However, it is shown to firmly brace either side of element 13 in figs. 1 and 2 (an insulation layer), and is disclosed to be an attachment system, and so is considered to be analogous art to the attachment system of Smith.

With particular consideration to claims **4-6**, the attachment system of Long comprises a first attachment element, being a pin having an elongated central core element 15 and flange like elevations 22, 31 formed at either retaining end of the core element 15;

a casing 18, 19 formed around the core element, such that the core is embedded in the casing (fig. 4: elements 18 and 19 is shown but unnumbered in fig. 2 to be distinct from the core 15, and is considered to encase that portion of the pin, and the pin is embedded in the casing);

wherein the casing is made of plastic (col. 2, lines 18 and 26) and formed around the core (col. 2, lines 18-19 and 26-27: these elements are injection molded right onto the rod);

wherein a flange extends outwardly in a radial fashion from a middle portion of the pin (either of protrusions 32 or 33 extend radially out from the longitudinal centerline of the pin); and

wherein a plurality of pine-tree-shaped elevations 41 are formed in the casing along the length of the pin.

With particular consideration to claims **10 and 12** the attachment system of Long additionally comprises second attachment elements 36, 38 shaped as a truncated-cone body (fig. 4, 5: the elements 36 and 38 are shown to have a truncated cone shape, at least shown by the outline in fig. 2);

wherein the second attachments 36, 38 comprise an insulated disc (fig. 2: by the back of element 36 it can be seen that the second attachments have a disc on the back sides, which is shown in fig. 2 to be made from plastic, and is thus insulating to an inherent degree) which is joined to an insulation jacket 62; and

wherein the insulated disc comprises a first insulation ring 62 of a larger circumference and a second insulation ring 39 of a smaller circumference (fig. 3: a

broken ring is shown to surround the opening comprising fingers 39), and several insulation braces 61 (fig. 3) are spaced apart on the outer circumference of the inner ring 39, extending to the inner circumference of the outer ring 62.

With particular consideration to claims **24-28**, the attachment system of Long comprises a first attachment element 15 with first and second retainer ends (outboard ends of 18, 19) on opposing ends of the pin, and first and second retainers 36, 38 which attach to the retainer ends (once affixed as in fig. 2, they are attached to the entire pin) such that the retainers cover the holes in the material captured behind them (fig. 1);

wherein the first attachment element 15 further is a fire resistant pin (fig. 2: it is shown to be made from plastic, which has some inherent resistance to fire) extending between the two retainer ends, and having first and second retention flanges 22, 31 on opposing ends of the pin;

wherein at least a portion of the pin 15 is encased in a plastic casing (col. 2, lines 18-30: the retainer ends 18, 19 are made from plastic and encase the pin; both the retainer ends and the casing are claimed as of the pin, and so the retainer ends can still refer to the region where the casing lies without doubly considering the same elements);

wherein the plastic casing includes a central flange 32 disposed between the retainer ends (the flange is inboard of the outer ends of 18, 19), the central flange extending outwardly radially from the pin; and

wherein the plastic casing defines a three-dimensional shape having a plurality of pine-tree-shaped elevations on each retainer ends (pin tree elevations 41 are shown on 19, and an elevation 33 is shown on 18, both for retaining the retainer ends);

(col. 2, lines 31-35: notches).

The attachment system of Smith comprises a shaft with two disc-shaped retaining elements, and so does the system of Long. There is no structure analogous to the elements 11 and 12 of Long, but the attachment system of Long may still retain the packages 22, 29 in place about the rib 31. It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace the attachment system of Smith with that of Long, to retain the insulation packages 22, 29 in place on the rib, and as a replacement of one known attachment element with another known attachment element, and further such combination would have predictable results.

Claims **4-6, 8-10, 14, 15 and 21-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea in view of USPN-600107 to West.

Lea teaches an insulation arrangement whereby insulation packages are tightly coiled (as in fig. 1), but the coils are retained with a material 16 to tightly fit into a container 17, for ease of installation (col. 3, lines 60-65). The fashion in which the insulation packages of Lea are installed is referenced in col. 3, lines 60-65 and col. 4, lines 11-20, and it appears that the insulation packages are kept in units 17, and then fitted between the frames (ribs) 20. Lea provides fasteners 30 and spacers 32 (col. 3, line 73 – col. 4, line 3), which do not include all of the limitations of the dependent claims, but Lea allows that other fastening methods may be implemented (col. 4, lines 3-4, and lines 60-63).

West teaches an attachment system (in fig. 1) and a first method of operation wherein a canvas 12 is slipped over attachment ring 30 and captured in the recessed region 34 above capmate 32 by a retainer ring 36 (col. 3, line 64 - col. 4, line 6), preferably beforehand (col. 4, lines 18-20: if the ring is preferably permanently attached to the canvas, then when time comes for attaching the canvas to the boat hull, the ring will already be present in the canvas), and a plunger pin 16 is inserted through the ring assembly 30 (col. 4, lines 18-20), and then into the lock plug 18 (col. 4, lines 21-25), the lock plug having already been installed in the boat hull (col. 3, lines 22-32, col. 4, lines 45-48). This attachment system is designed for routine attachment of a protective covering to an object (col. 1, lines 9-14), and is thus adapted for removable secure attachment of a covering to the frame of a vehicle.

With particular consideration to claims **4-6 and 9**, the attachment system of West:

comprises an attachment element (at least elements 16, 38 and 40) which is fire resistant and comprises a fire resistant pin 16 (fig. 2: these elements are made from steel);

wherein the pin 16 has an elongated cylindrical core and a flange like elevation formed at either end of the core (a flange is shown near where numeral 24 points at one longitudinal end of pin 16, and flange 38 is at the other longitudinal end; both of these elements are elevations from the pin, and are thus flange-like);

wherein the core is embedded in a plastic casing 18 (col. 3, lines 50-55), which is formed around the core (fig. 1: element 16 is shown to be embedded in the plug 18 by

the elevation 24 having been captured by the ridge in receiver 22, as described in col. 4, lines 21-25);

wherein a flange 26 extends radially outwardly from a middle of the pin 16 (flange 26 is part of the casing 18, but the casing is part of the pin);

wherein a plurality of pine-tree shaped elevations 20 are formed in the casing 18 along the surface thereof and along the length of the pin 16; and

wherein the core element 16 is made from metal (fig. 2: stainless steel), and the casing 18 comprises a plastic of lower thermal conductivity than the metal (col. 3, lines 50-55: nylon has a lower thermal conductivity than stainless steel).

With consideration to the best understanding of claim **8**, the end region of the casing 18 of West (fig. 1) is dome-shaped (the bottom end region), wherein the external shape of said end region has the shape of a paraboloid, and the curve is drawn inward radially towards the longitudinal axis of the pin.

With particular consideration of claims **10 and 11**, the attachment system of West comprises a first attachment element (at least elements 16, 38 and 40) which is fire resistant (fig. 2: these elements are made from steel), and has first and second retainer ends (at the bottom and top) and a second attachment element (at least elements 36 and 30);

wherein the second attachment element is shaped as a truncated cone-body (see fig. 2a: element 36 is a truncated cone, and most profiles of element 30 are truncated cones), and the second attachment element comprises insulated discs 30, 36

which are fire resistant (fig. 2a: 36 is stainless steel, and 30 is nylon, though nylon inherently has some resistance to fire); and

wherein the insulated disc 36 is a first disc with a hole formed in the center, the diameter being less than the external diameter of a dome-shaped casing of an end region of the first and second retainer ends of the first attachment element (the diameter of the holes in both elements 30 and 36 is smaller than the external diameter of the end of the plug 18, which is the casing of the end region of the first attachment element; both hole diameters are also smaller than the external diameter of the dome shape of plunger cap 38 on another end of the first attachment element) such that the second attachment element (at 36) fits over dome-shaped casing 18 with a tight fit (see fig. 1).

Particular to the best understanding of claim **12**, the disc 30 comprises a first ring of larger circumference (fig. 1, at 32) and a second ring of smaller circumference (fig. 1, at the region pointed to as 30), wherein insulation braces are spaced apart and touch the two rings (a brace is shown at 36 and another at 26, and neither element has been considered to meet a limitation of parent claim 10; both contact the element 30 around its circumference and serve in part to brace the joint).

With particular consideration of claims **14 and 15**, a disc shaped core element 40 made from metal (fig. 2: stainless steel) is embedded in a casing 38 made from plastic having lower thermal conductivity than the metal (fig. 2: nylon).

With particular consideration of claims **24-28**, the attachment system of West comprises a first attachment element (at least elements 16, 38 and 40) which is fire

resistant (fig. 2: these elements are made from steel), and has first and second retainer ends (at the bottom and top);

wherein first and second retainers are attached to the first and second retainer ends such that the retainers cover the holes in the materials they retain (fig. 1: a first retainer at 18 covers holes in element 14, and a second at 36 covers holes in element 12);

wherein the first attachment element comprises a fire resistant pin 16 (fig. 2: stainless steel) extending between first and second retainer ends and having first and second retention flanges at opposing ends of the pin (fig. 1: a retention flange is visible at the bottom of pin 16, pointed to by numeral 24, and a retention flange is visible at the top end of the pin 16, at 38);

wherein at least a portion of the pin 16 is encased in a plastic casing (when assembled, the pin 16 is encased by at least elements 18 and 30, which are taught in fig. 2 and col. 3, lines 50-55 to be made of plastic);

wherein the plastic casing includes a central flange 26 disposed between the retainer ends and extending radially outwardly from the pin (fig. 1); and

wherein the plastic casing defines a three dimensional shape having a plurality of pine-tree shaped elevations on each of the first retainer end (fig. 1: elevations 20 in 18 on the bottom end) and on the second retainer end (fig. 1: an elevation in 30 is shown where numeral 30 points, on the top end of the first attachment element, and an elevation at 32 is also shown which is on the top half of the attachment element; both are angular and may be considered to be pine tree shaped) for retaining the first and

second retainers (the first and second retainers 18 and 36 are retained by these elevations; since the first attachment element comprises the first and second retainers, and also comprises the plastic casing, the elevations on retainer 18 may be considered as being on the first retainer end of the first attachment element; **alternatively**, if the first retainer is instead considered at 38, it covers holes and is indirectly attached to the bottom retainer end of the pin as required by claim 24, the second retention flange may instead be considered at 40 to avoid doubly considering 38, which flange being at the top end of the pin as required by claim 25, and the alternate first retainer 38 would then be retained from further downward travel in fig. 1 by the aforementioned flange of 30).

Regarding the combination of references, Lea teaches a fastening system (fig. 1, at 30, 32) for covering the ribs, stringers and skin of an aircraft with fire resistant insulation, and West teaches a fastening system (fig. 1), for use in any application where objects must be removably covered with a protective covering, including vehicles (col. 1, lines 9-14). The patent to West is therefore relevant as belonging to the analogous art of fastening systems, and one of ordinary skill in the art of fasteners would be capable of replacing the fasteners of Lea with those of West. It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace the attachment system of Lea (Lea fig. 1, elements 30, 32) with that of West (West fig. 1, elements 16-40), to retain the panels and insulation packages of Lea to the ribs of Lea, and as a use of a known attachment system, which implementation would have predictable results.

Regarding claims **29 and 30**, the first retainer of West (considered at 38) may be considered to comprise a core disc made of a first fire resistant material with a central hole (fig. 2: the top solid portion of pin 16 considered from the hole upwards in fig. 1 is shown to be fully embedded within element 38, and would be a solid disc made from stainless steel with a hole through its transverse center), and a shaped flange (the nylon element 38 itself) encasing the disc and extending from the disc in the direction which the top surface of the disc faces (it extends above the top of the pin) and is made from a second fire resistant material (fig. 2: element 38 is made from nylon, which has an inherent level of fire resistance); a shape of the shaped flange 38 of this retainer is formed in the shape of a paraboloid (the top).

The second retainer of West (considered at 36) is taught to be made from stainless steel (fig. 2), and is a disc with a central hole and opposing surfaces. If the pine trees of the casing are considered at 20 and 32, then the elevation pointed to by numeral 30 may be considered as a shaped flange; this flange partially encases at least a portion of disc 36, and extends upwardly from the disc in the direction the top side of the disc faces, and is taught in fig. 2 to be made from nylon, which is a material different from steel and inherently has some fire resistance. Claim 30 requires the shape of a paraboloid only for "a surface of the shaped flange of the first retainer and the second retainer", and so the paraboloid of 38 is "a surface" of the shaped flange of the first and retainers, the claim requiring only one paraboloid surface.

Claims **21 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea in view of USPN-6314630 to Munk et al. (hereafter Munk).

Regarding claims **21 and 22**, Lea teaches the insulation arrangement of claim 1, but fails to teach an additional attachment element comprising a steel or titanium rivet or screw connection element, or a nut made from aramide or a carbon fiber reinforced plastic. However, it is well known in the art to use nuts and bolts to attach ribs to stringers (Munk figs. 6 and 7: stringer at 90 is attached to rib at 220 by the nut/bolt pair at 244; bolts are screw connection elements). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use nuts and bolts to connect the ribs of Lea to the stringers of Lea (Lea fig 2: ribs at 20, stringers at 22) as a reversible method of connection to easily replace parts in the event of a repair. Furthermore, steel, titanium, aramides and carbon fiber plastics are well known materials in the art, and it would have been obvious to a person of ordinary skill in the art at the time of the invention to construct both the nut and bolt of Lea in view of Munk out of a carbon fiber reinforced plastic because it is both stronger and lighter than steel.

Response to Arguments

Applicant's arguments, see page 12, paragraph beginning under the heading, "Rejection under § 112" and ending on page 13, filed 4/20/2009, with respect to the rejection of claim 15 under 35 USC 112, 1st paragraph, have been fully considered and are persuasive. The rejection of 1/15/2009 has been withdrawn.

Applicant has asserted that support for the limitations of claim 15 can be found in paragraphs 52 and 53. It is noted that neither paragraph uses the full term "disc-shaped core element", ¶ 52 including a misspelling and ¶ 53 a truncation, and that in both cases

the incorrect reference character is used. However, it appears to be clear that these paragraphs are referencing the same disc-shaped core element discussed in ¶ 51.

Applicant's arguments, see second paragraph of page 13, filed 4/20/2009, with respect to the rejection of claims 29 and 30 under 35 USC 112, 1st paragraph, have been fully considered and are persuasive. The rejection of 1/15/2009 has been withdrawn.

Applicant's arguments filed 4/20/2009 have been fully considered but they are not persuasive.

In arguing how the claims read over the applied prior art, Applicant has relied upon a few configurations in the claims, and several definitions of words. Applicant asserts that the Lea reference fails to teach even a single configuration recited in claim 1 (Remarks, bottom of page 14), but specifically references only the limitations relevant to the retention of a package on an opposite side of the rib attachment region (found in lines 31-33 of claim 1), and the location of the holes of a package on opposing sides of the rib attachment region (in lines 31-33 of claim 2). Applicant has also asserted that the following terms are either defined in the specification or have inherent meanings in the art which have not been considered in a previous Office action: "burn-through-proof", "opposite", "flange-like", "elevation", "casing", and "formed around". Since the definitions of some of these words may be relevant to the arguments about the particular application of art, it may be useful to address these first.

Regarding the term, "burn-through-proof", Applicant asserts that the term "burn-through-proof" is defined in paragraphs 31, 62 and 63 of the specification to be

equal in scope to the term "fireproof". Applicant further asserts that the term, "fireproof" is "a term of the art defined by the FAA as a standard (attached) requiring a sample to withstand exposure at 2000° F for 15 minutes and is contrasted to the term fire resistant, which only requires a sample to withstand 5 minutes exposure at 2000° F (1093° C)." Applicant further appends to the Remarks

However, of the paragraphs 31, 62 and 63, none contain a formal definition. Materials are described to be "burn-through-proof" in ¶¶ 31 and 62, but the definition is not exclusively set forth. Paragraph 63 states that the term "burn-through-proof" "very much correlates" to the term "fireproof", which would tend to indicate that it does not completely correlate to the term and does not share the entirety of the definition of the word "fireproof". Paragraph 63 additionally states that the term, "fireproof" is synonymous with "resistant to fire", which second term would more likely be interpreted in the art as "fire resistant" than as "fireproof".

The examiner believes that term "fireproof" does not have a clear or consistent definition in the art, and that the FAA specifications for fireproof materials do not exclusively define the word "fireproof". However, since in Applicant's specification, the term "fireproof" is stated to be synonymous with "resistant to fire", the point is moot. By Applicant's own admission (page 12, Remarks 4/20/2009) the terms "fireproof" and "fire resistant" have definitions which differ in scope, and the term "burn-through-proof" has been described by Applicant in lines 1-2 of Specification ¶¶ 63 to be synonymous with both terms.

Additionally, absolutely no mention is made to any FAA standard in the paragraphs which Applicant has cited to support this definition. Since the words "fireproof" and "fire resistant" are commonly used outside of the FAA standards, the FAA standards for fireproof and fire resistant materials do not define the word, absent a specific statement in the specification that the term, "burn-through-proof" will exclusively correspond to the FAA standard throughout the application.

Therefore, the term, "burn-through-proof" has in fact not been defined by the specification to require materials which meet the FAA standards for fireproof (or fire resistant) materials. Any material in the prior art which can be considered to be "resistant to fire" may be considered to be "burn-through-proof" without exceeding the claim language in the context of the specification.

In arguing the application of art, Applicant has asserted that a number of elements are not taught to be "fireproof" or "burn-through-proof". Applicant is encouraged to reconsider the application of art in light of the fact that the specification does not define the term "burn-through-proof" to be restricted to materials which meet FAA standards for "fireproof".

Regarding the term, "opposite", Applicant appears to believe that if two sides of an element are disclosed in a reference to be on opposite sides of the element, then every consideration of the word "opposite" must follow the point of reference of the first set of sides (Remarks page 18, top of page to indent). This simply cannot be supported as the definition of the term. When discussing an aircraft, the fact that the nose and tail are on opposite sides of the aircraft does not detract from the fact that the left and right

wings are on opposite sides of the aircraft. The term, "opposite" is in fact quite dependent on the point of reference; the nose and tail are on opposite sides of the aircraft along the longitudinal axis, or along the longest dimension of the aircraft, while the left and right wings are on opposite sides of the aircraft along the transverse axis, or along the dimension of the wingspan. When the claim sets forth no point of reference by which the term "opposite" or "opposing" is to be interpreted, then the claim does not limit the dimension with respect to which the cited elements may be considered to be opposite.

In the claims, frequently the word is used to refer to opposite ends of the rib attachment region, or opposite ends of the insulating pin, but without any reference to a point or axis of the attachment region or insulating pin about which the claim elements must be opposed.

Notably, Applicant appears to assert that claims 1 and 2 require insulation package ends to be on opposite sides of the rib. However, all configurations in the attachment region are claimed in relationship to a "rib attachment region", which term, "attachment region" is a broad term and may well extend beyond the rib itself. As such the claims do not require any elements to be on opposing sides of the rib.

Regarding the terms, "flange like" and "elevation", the specification does not set forth a particular exclusive definition for these terms, and these terms are very broad terms in the art. An "elevation" should be elevated from something, and may be used in a manner roughly synonymous with "protrusion", though a plateau is an "elevation" and so the word "elevation" is broader. Something which is "flange like" must resemble a

flange in some way, and so should likely protrude from another surface, but clearly the word "like" indicates that the term is broader than the term, "flange". The term, "flange like elevation" is somewhat redundant, and appears to require only a protrusion from a base surface. It is not clear how this is absent from the patent to West.

Regarding the terms, "embedded", "casing" and "formed around", Applicant appears to hold very specific definitions for these words, though no exclusive definitions are set forth in the specification.

Applicant asserts that "casing" requires an outer covering on a core element. Applicant however does not provide any evidence for how the element 18 of West fails to meet this definition.

Applicant asserts that "embedded" requires one element to be fixed within another, apparently without any hope of ever being retrieved, since Applicant believes the removable nature of the connection between elements 16 and 18 of West precludes consideration of the term, "embedded". Respectfully, Applicant does not have an enabling disclosure for a core element embedded within a casing such that it can never be removed. The application of enough force would remove a polyamide casing from a steel pin. When the assembly of West is fully assembled, the pin 16 is fixed into the surrounding mass of the end of plug 18, is not easily removed from the plug, and may therefore be considered to be "embedded", even by the definition set forth in the Remarks.

Applicant has not set forth a definition for "formed around", though Applicant states it to be "quite different than fitted to or coupled to". It is noted that the claims are

all apparatus claims, and so the final state of the insulation package arrangement is considered. Once assembled, the plug 18 surrounds the pin 16, and since the claim is not a method of manufacturing claim and no structural difference arises from having formed the plug 18 in a different factory than the pin 16 as opposed to forming it directly in place around the pin 16, the final state of the plug as being around the pin meets the apparatus limitation of being "formed around" the pin. The term "formed around" may well be the broadest of the three terms.

If the three terms vary in scope, the element of West still meets all of them. Applicant has argued that the order in which the terms occur in dependency has some effect upon their inherent definitions, however this is not a common attribute of definitions. Applicant's assertions (Remarks, page 19, first paragraph) that "embedded" must mean something more than "formed around" because of the order of dependency would indicate that a change in the order in which Applicant presents words would change the definitions of the terms. Claim 5 merely requires that the core element-casing connection meet the combined limitations of "formed around" and "embedded in", since there may well be a variance in scope of both terms over each other.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The West reference is directed toward an attachment element and is therefore analogous. Applicant's statement that there are "an infinite variety of ways of attaching insulation within an aircraft, and there are an infinite variety of ways of connecting a canvas or tarp to a surface" and that because of that, the combination must have relied upon hindsight reasoning (Remarks, crossing page 16 to 17), when drawn to its logical conclusion, would mean that absolutely no two references to attachment elements or aircraft insulation may be combined. The two references both belong to the analogous art of attachment and fastening, and the combination is not inappropriate.

Regarding the fire resistant nature of the attachment of West, the attachment of West is shown to be made from steel. Certainly steel is at least fire resistant. Applicant's element is also made from stainless steel; if the stainless steel in West is not fireproof, then how can Applicant's stainless steel attachment element be fireproof?

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN-6442806 to Wesson teaches a double headed Christmas-tree fastener with washers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard R. Green whose telephone number is (571)270-

5380. The examiner can normally be reached on Monday - Thursday 8:00 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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